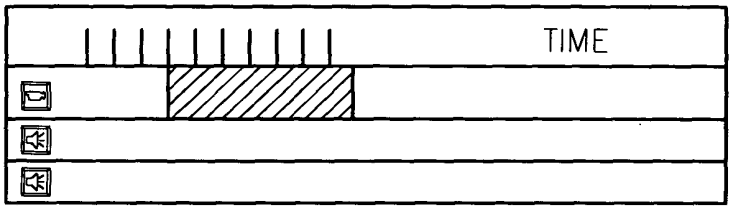
FIG. 1 (RELATED ART)



TIME	1.....2.....3.....4.....5.....6.....7.....8.....9.....10
VIDEO TRACK 1	############
TRANSITION	$$$$$
VIDEO TRACK 2	###############
TRANSITION	
VIDEO TRACK 3	
...	
AUDIO TRACK 1	**********
AUDIO TRACK 2	
ADDITIONAL TRACKS	

FIG. 2 (RELATED ART)

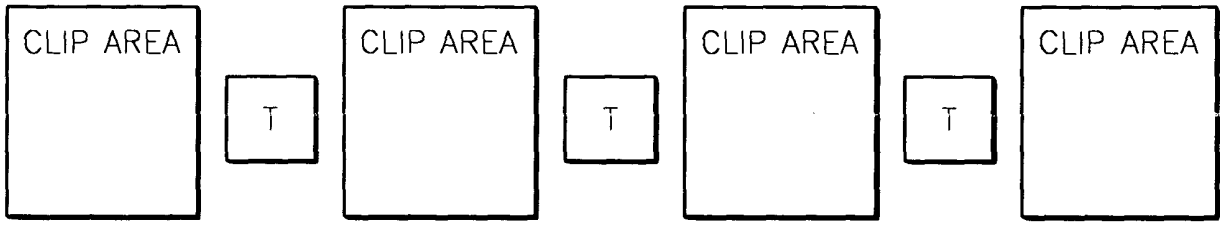


FIG. 3

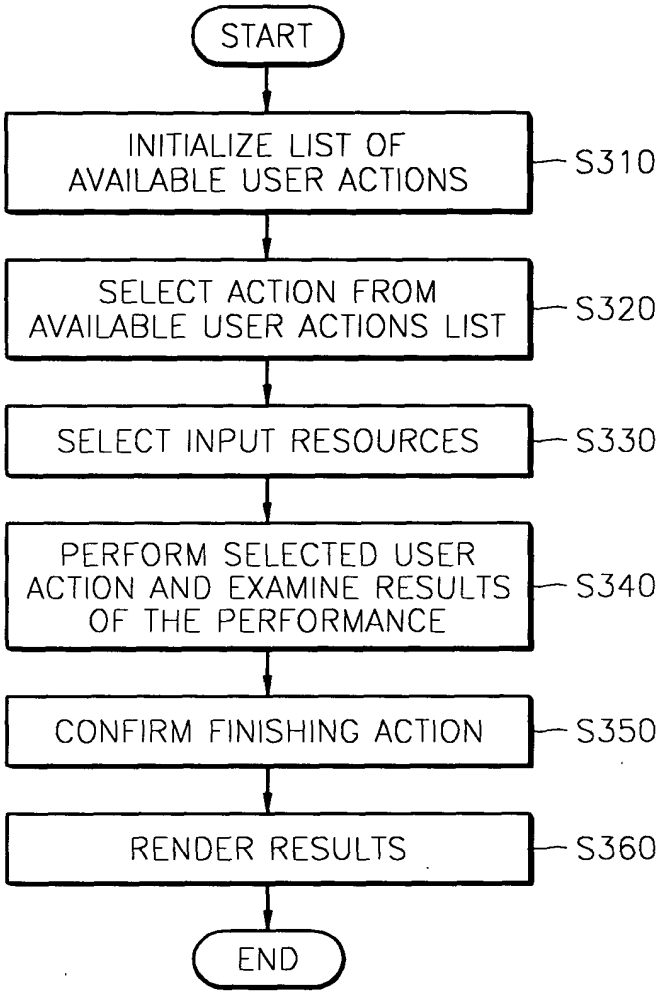

START
INITIALIZE LIST OF AVAILABLE USER ACTIONS
S310
SELECT ACTION FROM AVAILABLE USER ACTIONS LIST
S320
SELECT INPUT RESOURCES
S330
PERFORM SELECTED USER ACTION AND EXAMINE RESULTS OF THE PERFORMANCE
S340
CONFIRM FINISHING ACTION
S350
RENDER RESULTS
S360
END

FIG. 4

```
<action name="XXX1" ninput="N1" noutput="N2" userid="XXX2" CLSID="clsid
 help="XXX3">
  <input name="YYY1">
        <name="P1"/>
        <name="P2"/>
              .....
        <name="PN"/>
  </input>
  <input name="YYY2">
        <name="P1"/>
        <name="P2"/>
              .....
        <name="PN"/>
  </input>

  ......

  <output name="ZZZ1">
        <name="P1"/>
        <name="P2"/>
              .....
        <name="PN"/>
  </output>
  <output name="YYY1">
        <name="P1"/>
        <name="P2"/>
              .....
        <name="PN"/>
  </output>

  ......

</action>
```

FIG. 5

TEMPLATE	ATTRIBUTES	DESCRIPTION
TRANSFORM TEMPLATE	CLSID	UNIQUE GLOBAL IDENTIFICATION NUMBER
	mute	WHETHER SOUND IS AVAILABLE OR NOT DURING TRANSITION (TRUE OR FALSE)
	mstart	START TIME OF TRANSFORM RELATIVE TO MAIN STREAM
	mstop	STOP TIME OF TRANSFORM RELATIVE TO MAIN STREAM
RESOURCE TEMPLATE	start	START TIME FOR DISPLAYING RELATIVE TO THE BEGINNING OF REAL CLIP
	stop	STOP TIME FOR DISPLAYING RELATIVE TO REAL CLIP
	mstart	START TIME OF DISPLAYING CLIP RELATIVE TO EDITING MODEL
	mstop	STOP TIME OF DISPLAYING CLIP RELATIVE TO EDITING MODEL
	src	RESOURCE FILE NAME
	fname	FILE NAME APPLICABLE IF DESTINATION FILE NAME DIFFERS FROM ORIGIN ONE
	stream	NUMBER OF STREAMS IN ORIGINAL FILE
	mute	TRUE OR FALSE DEPENDS IF SOUND IS AVAILABLE OR NOT
VUNION TEMPLATE	mstart	START TIME OF DISPLAYING CLIP RELATIVE TO EDITING MODEL
	mstop	STOP TIME OF DISPLAYING CLIP RELATIVE TO EDITING MODEL
	mute	TRUE OR FALSE DEPENDS IF SOUND IS AVAILABLE OR NOT
	fname	DESTINATION FILE IF APPLICABLE

FIG. 6

```
<action name="SPLIT" ninput="1" noutput="2" userid="0"  CLSID="ID_SPLIT"
 help="some tips">
  <input name="RESOURCE">
        <name="framerate"/>
        <name="start"/>
        <name="stop"/>
        <name="src"/>
   <name="stream"/>
  </input>

  <output name="VUNION">
 <name="framerate"/>
        <name="start"/>
        <name="stop"/>
        <name="stream"/>
        <name="src"/>
        <name="fname"/>
  </output>
  <output name="VUNION">
        <name="start"/>
        <name="framerate"/>
        <name="start"/>
        <name="stop"/>
        <name="src"/>
        <name="stream"/>
        <name="fname"/>
  </output>
</action>
```

FIG. 7

```
<action name="TRANSITION" ninput="3" noutput="1" userid="0"
 CLSID="ID_TRANSITION" 0
help="some tips">
  <input name="clip">
       <name="framerate"/>
       <name="start"/>
       <name="stop"/>
       <name="src"/>
       <name="stream"/>
  </input>
  <input name="clip">
       <name="framerate"/>
       <name="start"/>
       <name="stop"/>
       <name="mstart"/>
       <name="src"/>
       <name="stream"/>
  </input>
  <input name="transition">
       <name="clsid"/>
       <name="mute"/>
       <name="start"/>
       <name="stop"/>
  </input>
  <output name="vunion">
       <name="lock"/>
       <name="mute"/>
       <name="mstart"/>
       <name="mstop"/>
       <name="fname"/>
  </output>
</action>
```

FIG. 8

```
<action name="MERGE" ninput="2" noutput="1" userid="0" CLSID="ID_MERGE"
 help="some tips">
  <input name="clip">
       <name="framerate"/>
       <name="start"/>
       <name="stop"/>
       <name="src"/>
       <name="stream"/>
  </input>
  <input name="clip">
       <name="framerate"/>
       <name="start"/>
       <name="stop"/>
       <name="src"/>
       <name="stream"/>
  </input>
  <output name="vunion">
       <name="lock"/>
       <name="mute"/>
       <name="mstart"/>
       <name="mstop"/>
       <name="fname"/>
  </output>
</action>
```

FIG. 9

```
<action name="INSERT" ninput="2" noutput="1" userid="0" CLSID="ID_INSERT"
 help="some tips">
  <input name="clip">
       <name="framerate"/>
       <name="start"/>
       <name="stop"/>
       <name="src"/>
       <name="stream"/>
  </input>
  <input name="clip">
       <name="framerate"/>
       <name="start"/>
       <name="mstart"/>
       <name="stop"/>
       <name="src"/>
       <name="stream"/>
  </input>
  <output name="vunion">
       <name="lock"/>
       <name="mute"/>
       <name="mstart"/>
       <name="mstop"/>
       <name="fname"/>
  </output>
</action>
```

FIG. 10

NO.	ACTION NAME	DESCRIPTION
1	IMPORT RESOURCE	AN EDITING PROCESS DEALS WITH MEDIA RESOURCES, SUCH AS, LOCAL FILES, DV, CAMERA CASSETTES, INTERNET STREAMING RESOURCES, AND THE LIKE. IMPORT RESOURCE MEANS TO MARK THE AVAILABILITY OF RESOURCES UPON EDITING AND RECEIVE A SPECIAL RESOURCE MONIKER AND INFORMATION ABOUT THE RESOURCES.
2	CLOSE RESOURCE	TO FREE A RESOURCE MONIKER AND MAKE RESOURCES UNAVAILABLE FOR DIRECT EDITING IN SUBSEQUENT STAGES.
3	DELETE EDITING RESULT	TO DELETE SOME EDITING RESULTS. THIS PROCEDURE HELPS USERS TO STORE ONLY VALUABLE RESULTS.
4	EXPORT EDITING RESULT	AFTER PERFORMING SOME EDITING ACTIONS, RESULTS MUST BE SAVED IN A SPECIAL FORMAT, SUCH AS, MPEG 2 FORMAT
5	SPLIT CLIP	TO SPLIT A WHOLE CLIP INTO PIECES THAT START/FINISH AT A CERTAIN TIME
6	MERGE CLIP	TO MERGE SEVERAL DIFFERENT CLIPS INTO ONE WHOLE CLIP
7	INSERT CLIP	TO INSERT ONE CLIP, CALLED A SOURCE, AT A CERTAIN TIME INTO ANOTHER CLIP, CALLED A TARGET
8	DEFINE TRANSFORM	TO ALLOW USER TO DEFINE TRANSFORMS (EFFECT, TRANSITIONS)

FIG. 11

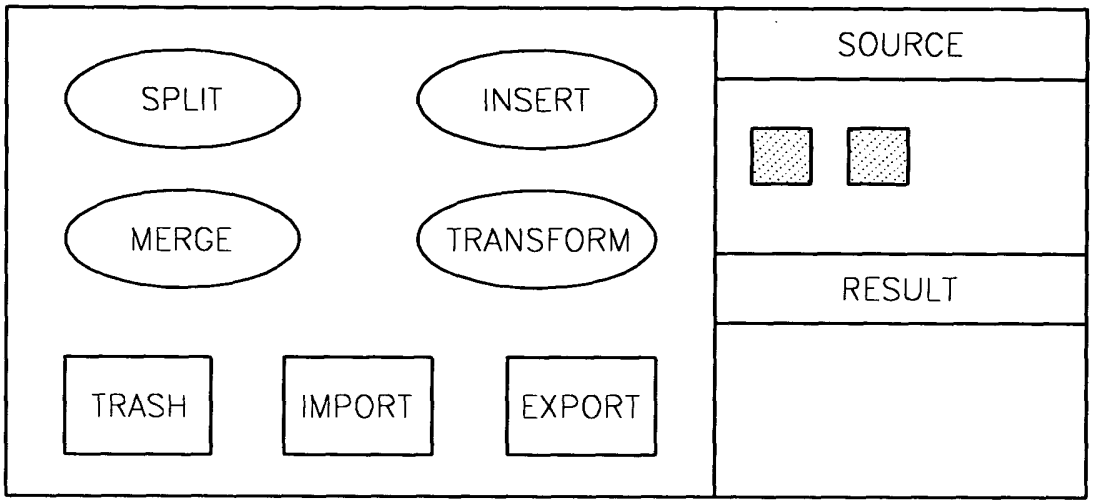

SPLIT
INSERT
MERGE
TRANSFORM
TRASH
IMPORT
EXPORT
SOURCE
RESULT

FIG. 12

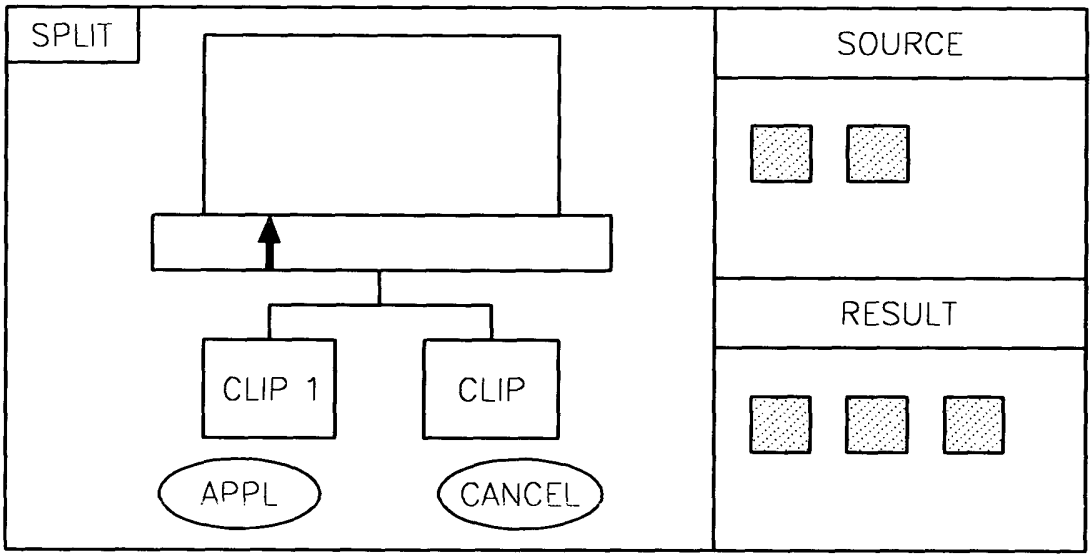

SPLIT
CLIP 1
CLIP
APPL
CANCEL
SOURCE
RESULT

FIG. 13

```
<action name="SPLIT" ninput="1" noutput="2" userid="0" CLSID="ID_SPLIT"
 help="some tips">
  <input name="clip">
        <start="0"/>
        <stop="17"/>
        <src="myclip.mpg"/>
  </input>
  <output name="clip">
        <start="0"/>
        <stop="10"/>
        <src="myclip.mpg"/>
  </output>
  <output name="clip">
        <start="10"/>
        <stop="17"/>
        <src="myclip.mpg"/>
  </output>
</action>
```

FIG. 14

```
<action name="INSERT" ninput="2" noutput="1" userid="0" CLSID="ID_INSERT"
 help="some tips">
  <input name="clip">
        <start="0"/>
        <stop="10"/>
        <src = "targetclip.mpg"/>
  </input>
  <input name="clip">
        <start="0"/>
        <stop="27"/>
        <src = "clip.mpg"/>
  </input>

<output name="vunion">
  <output name="clip">
        <start="0"/>
        <stop="4"/>
        <mstrat="0"/>
        <src = "targetclip"/>
  </output>
  <output name="clip">
        <mstart="4"/>
        <start="0"/>
        <stop="27"/>
        <src = "clip.mpg"/>
  </output>
  <output name="clip">
        <start="4"/>
        <stop="10"/>
        <mstart="31"/>
        <src = "targetclip.mpg"/>
  </output>
</output>
</action>
```

FIG. 15

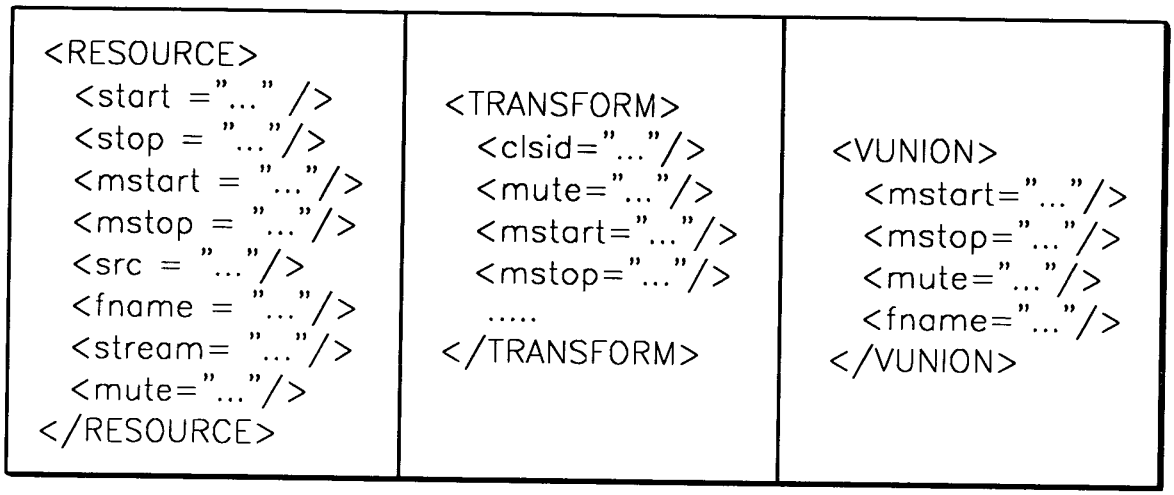

<RESOURCE>
<start ="..." />
<stop = "..."/>
<mstart = "..."/>
<mstop = "..."/>
<src = "..."/>
<fname = "..."/>
<stream= "..."/>
<mute="..."/>
</RESOURCE>
<TRANSFORM>
<clsid="..."/>
<mute="..."/>
<mstart="..."/>
<mstop="..."/>
.....
</TRANSFORM>
<VUNION>
<mstart="..."/>
<mstop="..."/>
<mute="..."/>
<fname="..."/>
</VUNION>

FIG. 16

```
<VUNION>
    <mstart=1/>
    <mstop=31/>
    <VUNION/>
      <mstart=0/>
      <mstop=33/>
      <RESOURCE>
            <src="AAA.AVI"/>
            <mstart=0/>
            <mstop=4/>
   </RESOURCE>
   <RESOURCE>
            <src="BBB.AVI"/>
            <mstart=0/>
            <mstop=23/>
            <start=4/>
   </RESOURCE>
   <RESOURCE>
            <src="AAA.AVI"/>
            <mstart=27/>
            <mstop=33/>
   </RESOURCE>
  </VUNION>
</VUNION>
```

FIG. 17

```
<VUNION/>
    <mstart=1>
    <mstop=31>
    <RESOURCE>
        <src="AAA.AVI"/>
        <mstart=1>
        <mstop=4/>
    </RESOURCE>
    <RESOURCE>
        <src="BBB.AVI"/>
        <mstart=0/>
        <mstop=23/>
        <start=4/>
    </RESOURCE>
    <RESOURCE>
        <src="AAA.AVI"/>
        <mstart=26>
        <mstop=31>
    </RESOURCE>
</VUNION>
```

FIG. 18

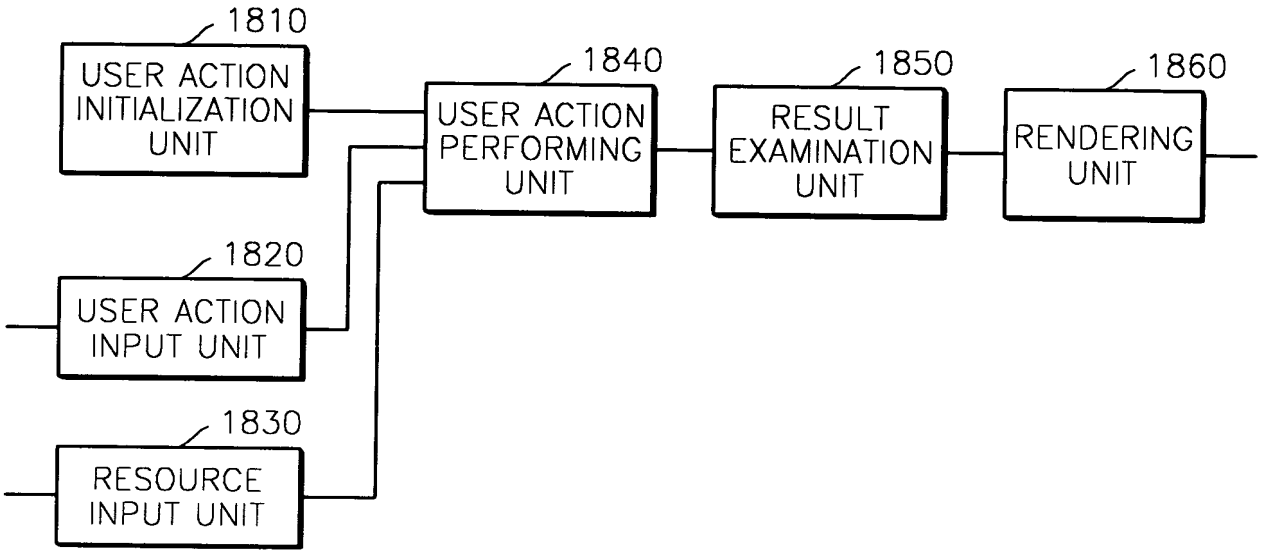

1810
USER ACTION INITIALIZATION UNIT
1840
USER ACTION PERFORMING UNIT
1850
RESULT EXAMINATION UNIT
1860
RENDERING UNIT
1820
USER ACTION INPUT UNIT
1830
RESOURCE INPUT UNIT

FIG. 19

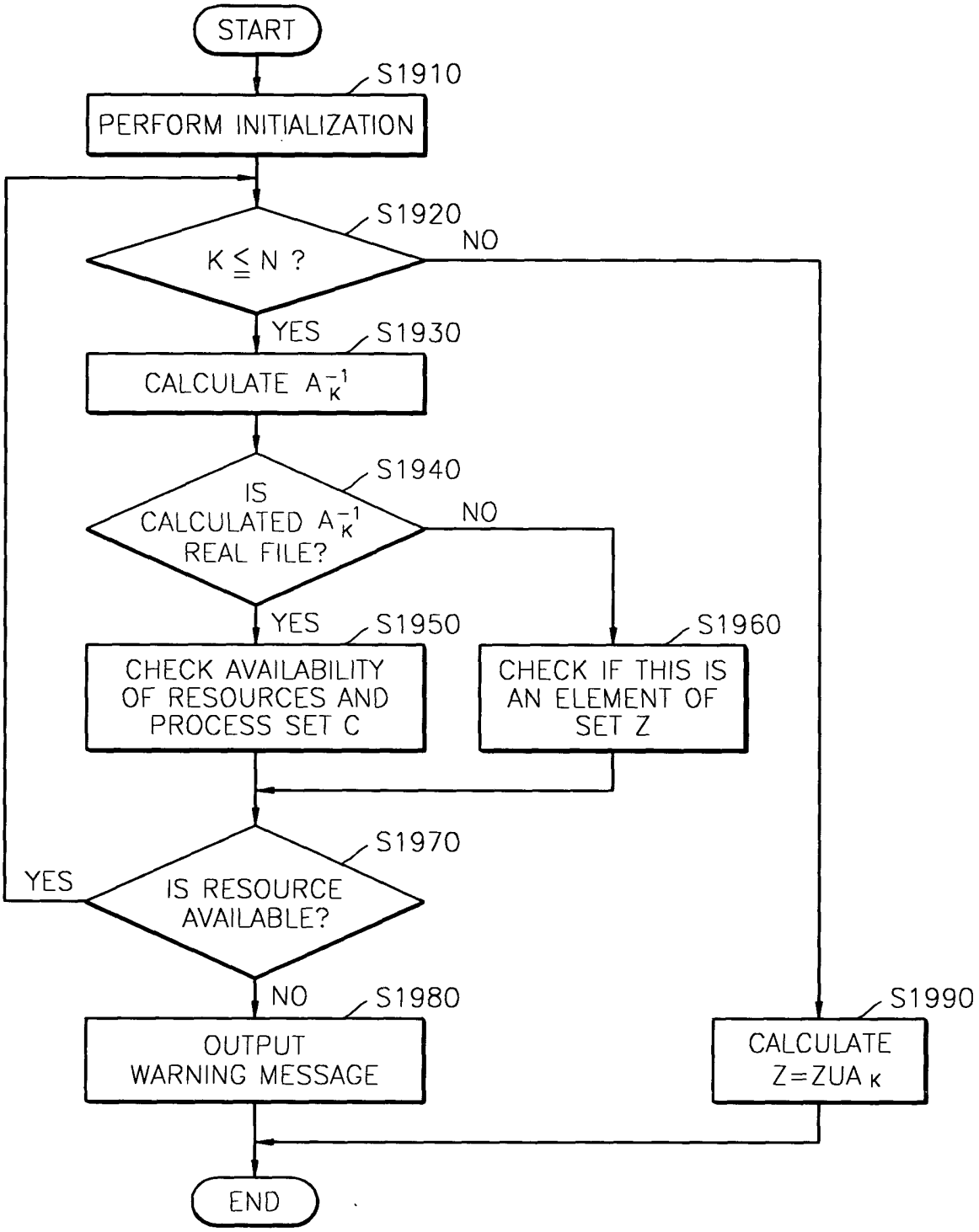

START
S1910
PERFORM INITIALIZATION
S1920
K ≦ N ?
NO
YES
S1930
CALCULATE A_K^{-1}
S1940
IS CALCULATED A_K^{-1} REAL FILE?
NO
YES
S1950
CHECK AVAILABILITY OF RESOURCES AND PROCESS SET C
S1960
CHECK IF THIS IS AN ELEMENT OF SET Z
S1970
IS RESOURCE AVAILABLE?
YES
NO
S1980
OUTPUT WARNING MESSAGE
S1990
CALCULATE $Z=ZUA_K$
END

FIG. 20

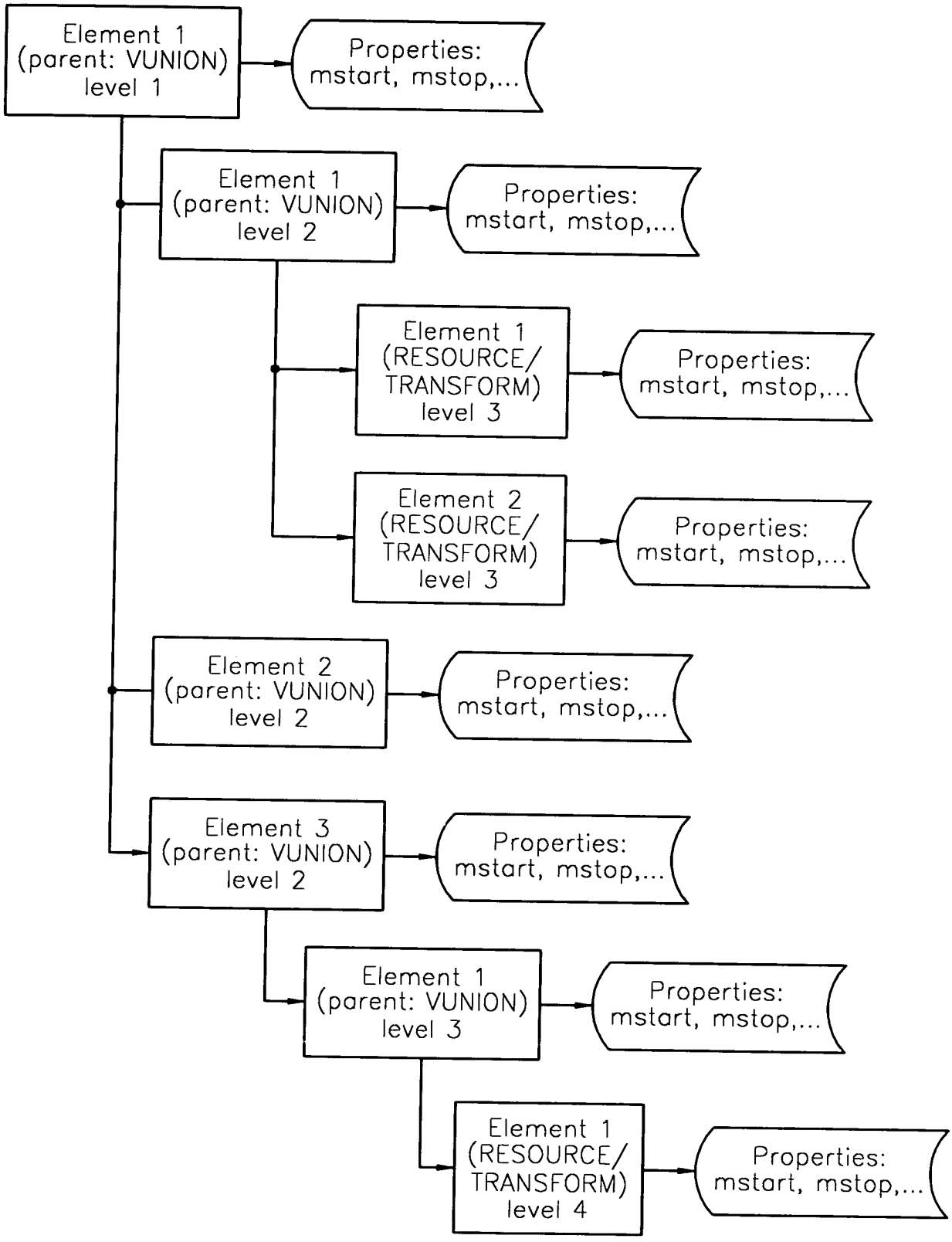
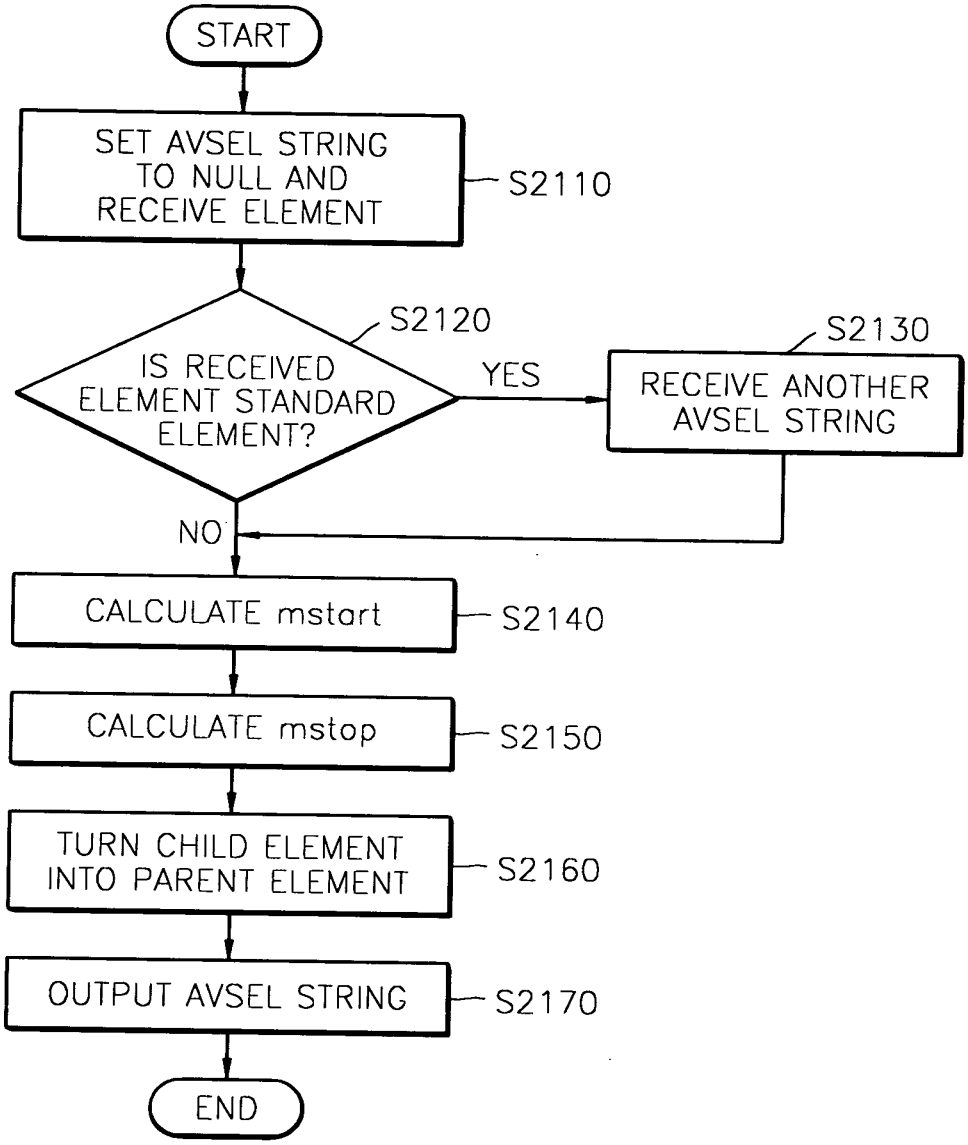

Element 1 (parent: VUNION) level 1
Properties: mstart, mstop,...
Element 1 (parent: VUNION) level 2
Properties: mstart, mstop,...
Element 1 (RESOURCE/ TRANSFORM) level 3
Properties: mstart, mstop,...
Element 2 (RESOURCE/ TRANSFORM) level 3
Properties: mstart, mstop,...
Element 2 (parent: VUNION) level 2
Properties: mstart, mstop,...
Element 3 (parent: VUNION) level 2
Properties: mstart, mstop,...
Element 1 (parent: VUNION) level 3
Properties: mstart, mstop,...
Element 1 (RESOURCE/ TRANSFORM) level 4
Properties: mstart, mstop,...

FIG. 21


START
SET AVSEL STRING TO NULL AND RECEIVE ELEMENT
S2110
S2120
IS RECEIVED ELEMENT STANDARD ELEMENT?
YES
S2130
RECEIVE ANOTHER AVSEL STRING
NO
CALCULATE mstart
S2140
CALCULATE mstop
S2150
TURN CHILD ELEMENT INTO PARENT ELEMENT
S2160
OUTPUT AVSEL STRING
S2170
END